

IN THE CLAIMS:

Claims 1-14 (Cancelled)

15. (New) A device for abrasive machining of surfaces of components, comprising:
- a tool having an inlet and an outlet;
  - a supply unit for conveying to the inlet a liquid in which abrasive agents are dissolved and which emerges from the outlet; and
  - a positioning means which guides the tool across a surface to be machined, and simultaneously positions said tool in such manner that the outlet faces the surface to be machined, such that an area of an annular gap defined by boundary walls of the outlet and the surface to be machined is smaller than a cross-sectional area of the inlet.
16. (New) The device according to claim 15, wherein the cross-sectional area of the inlet is greater by a factor of at least 5 than the cross-sectional area of the formed annular gap.
17. (New) The device according to claim 15, wherein the height of the formed annular gap is smaller than 3 mm and preferably is about 1 mm.
18. (New) The device according to claim 15, wherein a rotary unit is provided for rotating a component to be machined around an axis.
19. (New) The device according to claim 15, wherein the outlet has a circular cross-section, and that the tool has a cylindrical outer contour at least in the region of the outlet.

20. (New) The device according to claim 15,  
wherein that the cross-sectional area of the inlet is smaller than that of the outlet.

21. (New) The device according to claim 15,  
wherein for machining plane surfaces, an outer diameter of the tool in a region of  
the outlet is of an order of magnitude of one half of an aperture of an optical  
component.

22. (New) The device according to claim 15,  
wherein for machining curved surfaces, an outer diameter of the tool is of an  
order of magnitude of a smallest radius of the surface.

23. (New) The device according to claim 15,  
wherein the positioning means comprises a control unit for controlling a  
positioning of the tool according to surface data of a surface to be produced.

24. (New) A device for abrasive machining of surfaces of components, comprising

- a tool having an inlet and an outlet;
- a supply unit for conveying to the inlet a liquid in which abrasive agent are dissolved and which emerges from the outlet; and
- a positioning means which guides the tool across a surface to be machined, and simultaneously positions said tool in such manner that the outlet faces the surface to be machined, such that an area of an annular gap defined by boundary walls of the outlet and the surface to be machined is smaller than a cross-sectional area of the inlet;

wherein the supply unit conveys the liquid under a pressure smaller than 20 bar.

25. (New) The device accordance to claim 24, wherein the cross-sectional are of the inlet is greater by a factor of at least 5 than the cross-sectional area of the formed annular gap.

26. The device according to claim 24 wherein a height of the formed annular gap is smaller than 3 mm and preferably is about 1 mm.

27. (New) The device according to claim 24, wherein a rotary unit is provided for rotating a component to be machined around an axis.

28. (New) The device according to claim 24, wherein the outlet has a circular cross-section, and that the tool has a cylindrical outer contour at least in the region of the outlet.

29. (New) The device according to claim 24,  
wherein the cross-sectional area of the inlet is smaller than that of the outlet.

30. (New) The device according to claim 24,  
wherein for machining plane surfaces, an outer diameter of the tool in a region of  
the outlet is of an order of magnitude of one half of an aperture of an optical  
component.

31. (New) The device according to claim 24,  
wherein for machining curved surfaces, an outer diameter of the tool is of an  
order of magnitude of a smallest radius of the surface.

32. (New) The device according to claim 24,  
wherein the positioning means comprises a control unit for controlling a  
positioning of the tool according to surface data of a surface to be produced.

33. (New) The device according to claim 24,  
wherein the supply unit conveys the liquid under a pressure smaller than 5 bar.